

# USG HYDROCAL® BRAND B-11® GYPSUM CEMENT SOUTHARD, OK

## DESCRIPTION

USG Hydrocal® Brand B-11® Gypsum Cement has a high degree of plasticity and gradual setting action. Offering extreme accuracy, it is specifically designed for making die-sinking patterns by the splash-cast technique and original loft template models.

USG Hydrocal B-11 is a gray gypsum cement that sets in about 30 minutes after mixing, providing ample time for build-up work. In addition, it is water soluble; there is no need for organic solvents for cleanup. If information for a specific use is needed, please contact your local USG Sales Representative for further assistance.

## TYPICAL PHYSICAL PROPERTIES

Normal Consistency	44 lbs. water/100 lbs. product (20 kg water/45 kg product)
Hand Mix Vicat Set, Target (minutes)	20 - 27
% Expansion, final	0.08%
Compressive Strength, Dry (psi)	4500
pH Reaction	Alkaline

**NOTE** The *Typical Physical Properties* in the above table were achieved under controlled laboratory conditions with freshly produced material, results may vary.

## MIXING INSTRUCTIONS

### MIX PREPARATION

Use potable water at temperatures between 70 °F (21 °C) and 100 °F (38 °C). Because variations in slurry (USG Hydrocal B-11 Gypsum Cement and water mixture) temperature produce variations in set time, it is important to keep both the USG Hydrocal B-11 Gypsum Cement and water in a stable temperature environment prior to use. The higher the temperature of the slurry, the shorter the set time. Conversely, the lower the temperature of the slurry, the longer the set time.

Weigh both the USG Hydrocal B-11 Gypsum Cement and the water prior to use for each mix. The water-to-USG Hydrocal B-11 Gypsum Cement ratio is critical because it governs the strength and the density of the final cast.

### SOAKING

Sift or strew USG Hydrocal B-11 Gypsum Cement into the water slowly and evenly. Do not drop large amounts of USG Hydrocal B-11 Gypsum Cement directly into the water as proper soaking of the USG Hydrocal B-11 Gypsum Cement may not occur. USG Hydrocal B-11 Gypsum Cement should be fully dispersed in the water prior to mixing. Small batches require less soaking time than large batches. See USG IG503 *Plaster Mixing Procedures* for specific soaking instructions.

### MIXING

Mixing USG Hydrocal B-11 Gypsum Cement slurry is one of the most important steps in producing USG Hydrocal B-11 Gypsum Cement casts with maximum strength, absorption, hardness and other important properties.

Mechanically mixed slurries develop uniform casts with optimal strengths. USG Hydrocal B-11 Gypsum Cement can be mechanically mixed through both batch and continuous processes. Proper blade and bucket dimensions are important for obtaining the best batch mix (see USG IG503 *Plaster Mixing Procedures* for details).

Longer mixing times result in higher mold strength and shorter set times.

## POURING

To prevent air entrainment and provide a uniform, smooth surface, careful pouring of USG Hydrocal B-11 Gypsum Cement slurry is necessary. Agitation of the filled mold is a further step used to prevent air at or near the mold surface. Whenever possible, USG Hydrocal B-11 Gypsum Cement slurry should be poured carefully in the deepest area so that the slurry flows evenly across the surface of the case mold.

Pouring a large amount of slurry directly on the face of the case mold may result in slight densification of the USG Hydrocal B-11 Gypsum Cement mold at the point where it strikes the surface of the case. This produces a hard spot, giving uneven absorption.

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## DRYING

All casts should be dried as quickly as is safely possible after manufacture so that maximum physical properties can develop. Dry to a constant weight.

The best drying rooms or ovens provide 1) uniform and rapid circulation (minimum of 15-30 fps) of air with no "dead spots" having little or no air movement, 2) equal temperatures throughout the entire area, and 3) provisions for exhausting a portion of the air while replacing it with fresh air. High humidity surrounding the drying room or oven inhibits drying efficiency because the air pulled into the room is incapable of picking up much moisture from the molds.

The maximum temperature at which USG Hydrocal B-11 Gypsum Cement molds are safe from calcination is 120 °F (49 °C). With substantial free water in the mold, a higher drying temperature can be used without difficulty. As drying progresses, the temperature must be reduced to prevent calcination. Before removing molds from the dryer, the temperature should approach that of the area around the dryer to prevent thermal shock.

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## STORAGE AND USE

When properly used, USG Hydrocal B-11 Gypsum Cement is easy to work with. Keep indoors at temperatures between 65 °F – 75 °F (18 °C – 24 °C) and 45% – 55% RH. Do not stack more than two pallets high. Keep from drafts. Rotate stock. USG Hydrocal B-11 Gypsum Cement should be used within six months of the manufacturing date located on the package. Always follow handling and use directions and safety warnings on the package.

### PRODUCT INFORMATION

See [usg.com](http://usg.com) for the most up-to-date product information.

### DANGER

Causes skin irritation. Causes serious eye damage. May cause an allergic skin reaction. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection. Use only in a well-ventilated area, wear a NIOSH/MSHA-approved respirator. If swallowed, inhaled, or skin irritation occurs get medical attention. If on skin: Wash with plenty of water. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses and continue rinsing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Dispose of in accordance with local, state, and federal regulations. When mixed with water, this material hardens and becomes very hot sometimes quickly. DO NOT attempt to make a cast enclosing any part of the body using this material. For more information call Product Safety: 800-507-8899 or see the SDS at [usg.com](http://usg.com).

**KEEP OUT OF REACH OF CHILDREN.**

### TRADEMARKS

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### SAFETY FIRST!

Follow good safety/industrial hygiene practices during installation. Wear appropriate personal protective equipment. Read SDS and literature before specification and installation.

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